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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,752	08/25/2006	Masaaki Fuse	06563/LH	1205
1933 7590 10/24/2007 FRISHAUF, HOLTZ, GOODMAN & CHICK, PC 220 Fifth Avenue 16TH Floor NEW YORK, NY 10001-7708			EXAMINER WILLIAMS, HOWARD L	
			ART UNIT 2819	PAPER NUMBER
			MAIL DATE 10/24/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/590,752

Applicant(s)

FUSE ET AL.

Examiner

Howard L. Williams

Art Unit

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,8-11,14,15 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 2,3,6,7,12,13,16 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3- 20060825, 20070523, & 20070925.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 5, 8-11, 14, 15, and 18-21 rejected under 35 U.S.C. 103(a) as unpatentable over Sekiya (JP2004-328436 A) in view of Tamba (US 20030080885 A1).

Sekiya discloses an interleaved ADC with an input (10a), signal divider (11), N ADCs (121 -12N-1), sampling control (21), estimation means (221-22N-1), correction memory (25, 26) comprising ADC characteristic table (25) and equalizer coefficient table (27), equalizers (231-23N-1), signal combiner (24), and output (10b). The estimation means (22) and equalizers (23) correspond to the claimed correction processing means. Sekiya does not disclose the signal generator for the calibration signal and the associated selection switches or the correction information calculation means. Rather Sekiya discloses reliance upon pre-calculated and pre-stored values for ADC characteristic and equalizer coefficients. The calculations for these values appear to be similar to those made by the correction information calculation means. In Summary, Sekiya appears to lack the calibration signal and means to update the correction coefficients.

Tamba also discloses an interleaved ADC (100) including a plurality of ADCs (110, 112; fig. 1). Tamba temporarily stores the output of the ADCs in the buffer (130) before sending the values to the calculation unit (132) which communicates with the calibration memory (134) to for correction of the data. Tamba also discloses a calibration routine to update the correction coefficients stored in the memory [¶0027] by applying a known sine wave as the calibration signal generated by the calibration reference signal generator (106). The reference signal generator is disclosed as supplying or applying "sine waves having a plurality of frequencies" [¶0016].

The combination of Sekiya and Tamba would have been obvious to provide the interleaved ADC with calibration value updating because it would provide

compensation for the aging/drift of the converter and ensure accurate calibration values are stored for compensation of the converter values.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fernandez et al. (US 20060250288 A1) discloses interleaved ADC with pulse, sine, triangle waves as the calibration signal [¶0033]. Kost et al. (US 6081215 A), Jenq (US 4763105 A), and Corcoran (US 5294926 A) disclose an interleaved ADC with digital correction. Schachner et al. (US 6269317 B1) discloses calibration of oscilloscope ADCs with a square wave.

Claims 2, 3, 6, 7, 12, 13, 16, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The art of record was not seen disclose the square or pulse wave having the claimed power ratio for the overlapping bands or the additive combiner for the plural frequencies of sine waves.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office central facsimile number for application specific correspondence intended for entry is 571-273-8300.

10/16/07
Voice: (571) 272-1815

Howard L. Williams
Howard L. Williams
Primary Examiner
Art Unit 2819